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# Overweight and Obese

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## OVERWEIGHT OR OBESE

**Definition:** Overweight or obese is defined as having a Body Mass Index (BMI) of 25.0 or above. Body Mass Index (BMI) is calculated by taking a person's body weight in pounds, divided by their height in inches, divided by height in inches (again) times 703. The mathematical equation for BMI is:  $\text{weight (lb)}/\text{height (in)}^2 \times 703$ .

## Prevalence of Overweight or Obese

- South Dakota 67.1%
- Nationwide median 64.1%

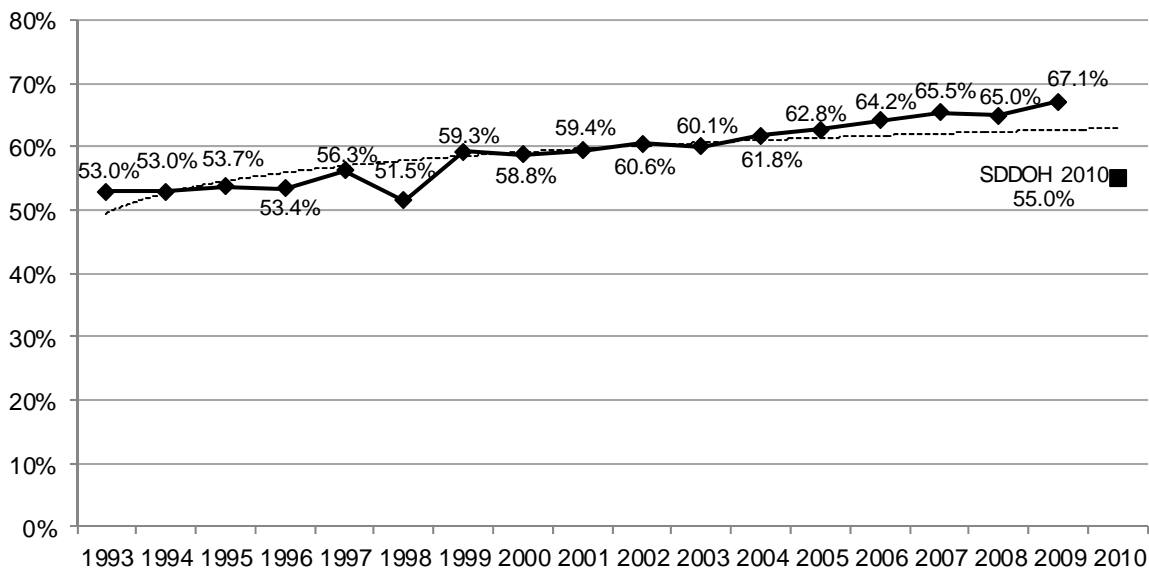
## South Dakota Department of Health 2010 Initiative

*Reduce the percent of adults who are overweight or obese to 55 percent.*

## Trend Analysis

Overall, the percent of respondents who are overweight or obese has been increasing since the question was first asked in 1993. South Dakota has not met the *South Dakota Department of Health 2010 Initiative* goal of 55 percent.

**Figure 1**  
**Percent of Respondents Who Are Overweight or Obese Based on Body Mass Index, 1993-2009**



Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 1993-2009

## Demographics

### **Gender**

Males exhibit a significantly higher prevalence of those who are overweight or obese than females. This difference is shown throughout many demographic groups including those who are 35 and older, whites, those with a household income of \$35,000 or more, and those with a high school education or higher.

<b>Age</b>	The prevalence of overweight or obesity increases as age increases until the 65-74 age group is reached, at which time the prevalence significantly decreases in the 75 and older age group. A significant increase is observed when the 25-34 age group is reached.
<b>Race</b>	American Indians exhibit a significantly higher prevalence of those who are overweight or obese than do whites. This difference is much more evident with females.
<b>Region</b>	Those in the American Indian counties region demonstrate a very high prevalence of those who are overweight or obese while those in the West region show a very low prevalence.
<b>Household Income</b>	The prevalence of females who are overweight or obese is much lower in the higher income households. Males do not exhibit this same association.
<b>Education</b>	The prevalence of overweight or obese generally decreases as education increases. This association is more evident with females.
<b>Marital Status</b>	Those who are widowed demonstrate a very low prevalence of those who are overweight or obese, while those who are married show a very high prevalence. Males who are married show a high prevalence of overweight or obese, while those who have never been married show a low prevalence. Females do not exhibit this same association.
<b>Children Status</b>	Having children in the household does not seem to affect overweight or obese status.

<b>Table 4</b>									
<b>Respondents Who Are Overweight or Obese, 2009</b>									
	<b>Total</b>			<b>Male</b>			<b>Female</b>		
	<b># Resp.</b>	<b>%</b>	<b>95% CI</b>	<b># Resp.</b>	<b>%</b>	<b>95% CI</b>	<b># Resp.</b>	<b>%</b>	<b>95% CI</b>
<b>Total</b>	<b>6,517</b>	<b>67.1</b>	<b>(65.2-69.0)</b>	<b>2,579</b>	<b>75.5</b>	<b>(72.5-78.3)</b>	<b>3,938</b>	<b>58.4</b>	<b>(55.9-60.8)</b>
<b>Age</b>									
18-24	199	51.3	(42.0-60.4)	*	*	*	*	*	*
25-34	557	66.6	(61.4-71.5)	206	71.5	(63.0-78.8)	351	61.1	(54.8-67.1)
35-44	797	68.1	(63.8-72.0)	338	77.6	(71.4-82.8)	459	57.4	(51.7-62.8)
45-54	1,324	71.2	(68.1-74.2)	551	81.3	(76.7-85.2)	773	60.4	(56.1-64.6)
55-64	1,363	76.0	(73.2-78.5)	578	87.1	(83.8-89.8)	785	64.0	(59.8-67.9)
65-74	1,057	76.3	(73.2-79.2)	413	81.4	(76.7-85.3)	644	71.5	(67.1-75.4)
75+	1,199	58.7	(55.3-62.0)	396	66.6	(60.8-71.9)	803	53.4	(49.2-57.6)
<b>Race</b>									
White	5,632	66.6	(64.6-68.6)	2,219	75.6	(72.3-78.6)	3,413	57.3	(54.7-59.8)
American Indian	689	76.1	(69.1-81.9)	270	77.7	(65.6-86.4)	419	74.8	(66.0-82.0)
<b>Region</b>									
Southeast	1,286	66.3	(62.3-70.1)	492	75.4	(68.8-81.0)	794	57.0	(52.1-61.6)
Northeast	1,258	68.8	(65.2-72.2)	469	76.5	(71.2-81.0)	789	61.6	(56.8-66.2)
Central	1,485	70.7	(67.2-73.9)	592	79.5	(73.9-84.1)	893	61.1	(56.7-65.4)
West	1,464	63.8	(60.3-67.3)	582	72.6	(67.2-77.4)	882	54.3	(49.8-58.8)
American Indian Counties	1,024	73.7	(68.3-78.5)	444	77.9	(69.2-84.7)	580	68.9	(62.0-75.0)
<b>Household Income</b>									
Less than \$10,000	328	71.9	(60.6-80.9)	107	75.0	(51.1-89.6)	221	69.3	(59.3-77.7)
\$10,000-\$14,999	338	72.4	(63.8-79.7)	107	70.0	(53.5-82.6)	231	74.2	(65.0-81.6)
\$15,000-\$19,999	446	66.9	(59.3-73.7)	148	67.9	(54.9-78.5)	298	66.1	(57.2-74.0)
\$20,000-\$24,999	610	68.3	(61.8-74.1)	219	81.6	(73.2-87.8)	391	56.7	(48.8-64.3)
\$25,000-\$34,999	822	64.5	(58.3-70.2)	324	66.0	(55.5-75.2)	498	63.0	(55.8-69.6)
\$35,000-\$49,999	1,032	65.2	(60.5-69.6)	435	73.6	(66.5-79.6)	597	57.2	(50.9-63.2)
\$50,000-\$74,999	1,028	72.0	(68.0-75.7)	472	78.2	(72.3-83.1)	556	64.4	(58.9-69.5)
\$75,000+	1,151	68.8	(64.9-72.4)	537	82.4	(77.3-86.6)	614	51.5	(45.9-57.0)

Table 4 (continued) Respondents Who Are Overweight or Obese, 2009									
	Total			Male			Female		
	# Resp.	%	95% CI	# Resp.	%	95% CI	# Resp.	%	95% CI
<b>Education</b>									
8th Grade or Less	229	71.2	(62.1-78.8)	124	74.7	(62.0-84.2)	105	64.1	(52.0-74.7)
Some High School	366	62.1	(51.8-71.5)	133	70.8	(55.5-82.5)	233	53.4	(40.6-65.8)
High School or G.E.D.	2,224	68.9	(65.6-71.9)	908	76.0	(71.0-80.4)	1,316	61.1	(56.9-65.2)
Some Post-High School	1,813	68.5	(64.7-72.0)	644	77.7	(71.2-83.1)	1,169	59.9	(55.4-64.2)
College Graduate	1,876	64.8	(61.3-68.1)	764	74.2	(68.4-79.2)	1,112	55.0	(50.7-59.2)
<b>Marital Status</b>									
Married/Unmarried Couple	3,920	69.3	(67.3-71.3)	1,703	79.7	(76.9-82.2)	2,217	58.3	(55.5-61.1)
Divorced/Separated	823	66.3	(60.1-72.0)	332	70.1	(58.5-79.6)	491	62.8	(56.4-68.7)
Widowed	1,037	61.2	(57.6-64.7)	165	72.3	(63.8-79.5)	872	58.8	(54.8-62.7)
Never Married	729	60.9	(53.6-67.7)	372	64.1	(54.1-73.0)	357	55.7	(45.6-65.5)
<b>Children Status</b>									
Children in Household	1,789	65.0	(61.7-68.2)	681	74.0	(68.7-78.7)	1,108	56.3	(52.0-60.4)
No Children in Household	4,725	68.6	(66.2-70.9)	1,895	76.5	(72.8-79.9)	2,830	60.0	(57.0-62.8)

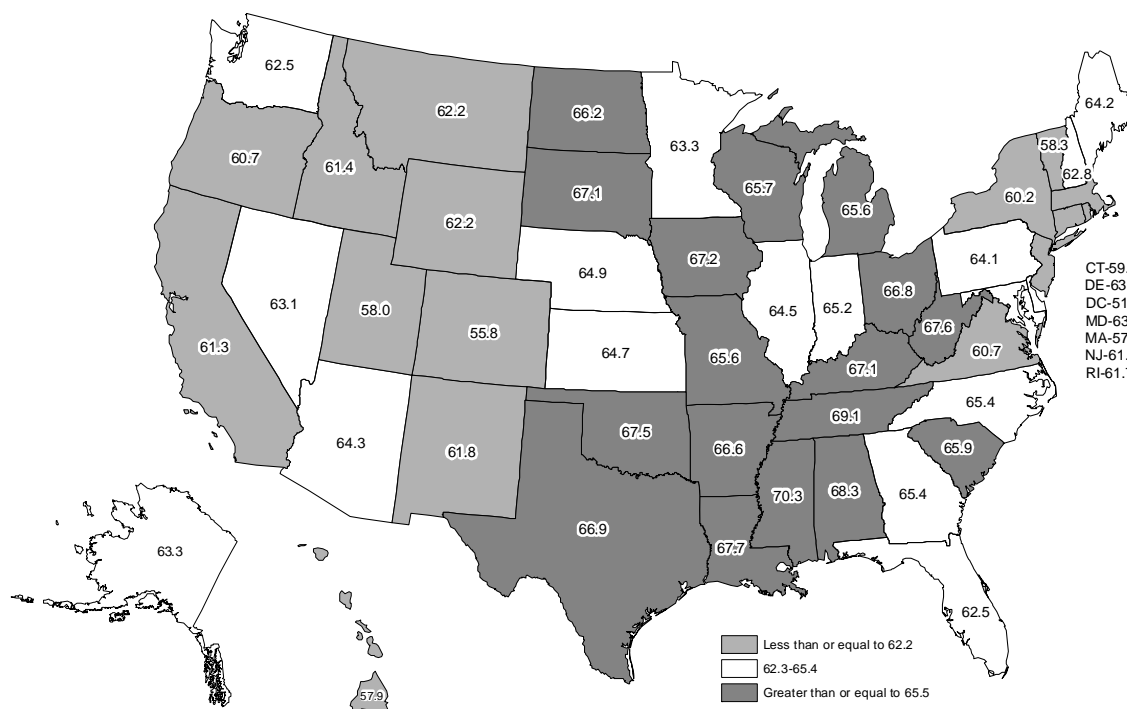
Note: \*Results based on sample sizes less than 100 have been suppressed.

Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2009

## National Statistics

The national median for respondents who are overweight or obese was 64.1 percent. South Dakota had 67.1 percent of respondents who are overweight or obese. The District of Columbia had the lowest percent of respondents who are overweight or obese with 51.8 percent, while Mississippi had the highest percent with 70.3 percent.

**Figure 2**  
**Nationally, Respondents Who Are Overweight or Obese, 2009**



Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2009

## Further Analysis

The following data show the percent of those who are overweight or obese for various health behaviors and conditions. For example, 84.0 percent of respondents who have diabetes are overweight or obese, while 65.8 percent of respondents who do not have diabetes are overweight or obese.

<b>Table 5</b> <b>Overweight or Obese for Selected Health Behaviors and Conditions, 2009</b>			
<b>Health Behavior or Condition</b>	<b># Respondents</b>	<b>% Overweight or Obese</b>	<b>95% CI</b>
No Leisure Time Physical Activity	1,936	70.2	67.0-73.3
Leisure Time Physical Activity	4,578	66.1	63.8-68.4
No Moderate Physical Activity	3,471	69.7	67.0-72.3
Moderate Physical Activity	2,597	62.7	59.6-65.7
No Vigorous Physical Activity	5,041	68.6	66.4-70.7
Vigorous Physical Activity	1,171	61.0	56.4-65.4
Less Than Five Servings of Fruits and Vegetables	5,114	68.4	66.2-70.5
At Least Five Servings of Fruits and Vegetables	1,200	57.9	53.4-62.2
Current Smoker	1,109	64.4	59.5-68.9
Former Smoker	2,051	74.1	71.2-76.7
Never Smoked	3,348	64.5	61.7-67.2
Smokeless Tobacco Use	322	76.0	68.3-82.4
No Smokeless Tobacco Use	6,195	66.5	64.5-68.5
Diabetes	767	84.0	80.0-87.3
No Diabetes	5,748	65.8	63.8-67.8
High Blood Pressure	2,617	79.6	77.5-81.6
No High Blood Pressure	3,892	61.7	59.2-64.2
High Blood Cholesterol	2,353	78.1	75.9-80.2
No High Blood Cholesterol	3,167	64.1	61.4-66.7
No Health Insurance (18-64)	298	58.1	48.5-67.1
Health Insurance (18-64)	3,691	67.9	65.4-70.3
Employer Based Health Insurance Coverage (18-64)	2,322	67.3	64.3-70.2
Private Health Insurance Plan (18-64)	564	63.5	56.7-69.8
Medicare (18-64)	125	79.7	69.4-87.1
Medicaid or Medical Assistance (18-64)	148	75.5	62.7-85.0
The Military, CHAMPUS, TriCare, or the VA (18-64)	183	76.7	62.8-86.6
The Indian Health Service (18-64)	294	74.5	63.6-83.0
No Flu Shot (65+)	582	64.5	59.6-69.2
Flu Shot (65+)	1,644	68.2	65.4-70.8
No Pneumonia Shot (65+)	703	67.0	62.7-71.0
Pneumonia Shot (65+)	1,475	67.2	64.2-70.0
Drank Alcohol in Past 30 Days	3,307	67.5	64.9-70.0
No Alcohol in Past 30 Days	3,132	66.5	63.5-69.3
Binge Drinker	850	73.4	68.6-77.6
Not a Binge Drinker	5,519	65.6	63.4-67.7
Heavy Drinker	249	74.7	67.0-81.1
Not a Heavy Drinker	6,081	66.8	64.8-68.8
Previously Had a Heart Attack	431	73.4	67.9-78.2
Never Had a Heart Attack	6,052	66.8	64.8-68.7
Have Angina or Coronary Heart Disease	388	72.9	67.0-78.2
Do Not Have Angina or Coronary Heart Disease	6,070	66.8	64.8-68.8
Previously Had a Stroke	244	68.6	60.4-75.8
Never Had a Stroke	6,257	67.1	65.1-69.0
Ever Diagnosed with Cancer	971	68.1	64.3-71.6
Never Diagnosed with Cancer	5,256	66.6	64.4-68.8
Current Asthma	529	62.3	54.1-69.8
Former Asthma	190	61.9	50.8-71.8
Never Had Asthma	5,758	67.7	65.7-69.7
Arthritis	2,282	73.9	71.4-76.3
No Arthritis	4,072	64.5	62.0-66.9

**Table 5 (continued)**  
**Overweight or Obese for Selected Health Behaviors and Conditions, 2009**

<b>Health Behavior or Condition</b>	<b># Respondents</b>	<b>% Overweight or Obese</b>	<b>95% CI</b>
Caregiver	1,560	69.7	66.0-73.1
Not a Caregiver	4,920	66.5	64.2-68.7
Fair or Poor Health Status	1,087	72.5	67.6-76.9
Excellent, Very Good, or Good Health Status	5,418	66.4	64.3-68.5
Physical Health Not Good for 30 Days of the Past 30	521	67.6	62.2-72.6
Physical Health Not Good for 0-29 Days of the Past 30	5,916	67.1	65.1-69.1
Mental Health Not Good for 20-30 Days of the Past 30	340	70.0	60.1-78.4
Mental Health Not Good for 0-19 Days of the Past 30	6,097	67.2	65.2-69.1
Usual Activities Unattainable for 10-30 Days of the Past 30	480	69.5	62.5-75.8
Usual Activities Unattainable for 0-9 Days of the Past 30	5,994	67.0	65.0-69.0
Dissatisfied / Very Dissatisfied with Life	240	67.7	58.6-75.7
Satisfied / Very Satisfied with Life	5,963	66.8	64.7-68.8
Not Enough Sleep for 30 Days of the Past 30	618	68.8	62.3-74.6
Not Enough Sleep for 0-29 Days of the Past 30	5,826	67.0	64.9-69.0
Physical, Mental, or Emotional Disability	1,540	72.5	69.0-75.7
No Physical, Mental, or Emotional Disability	4,921	66.0	63.7-68.2
Disability with Special Equipment Needed	655	71.0	64.8-76.5
No Disability with Special Equipment Needed	5,805	66.8	64.8-68.8
Two or More Hours of TV Watched Per Day	4,863	69.5	67.2-71.7
Less Than Two Hours of TV Watched Per Day	1,294	58.6	64.4-62.8
Never Been Tested for HIV (18-64)	2,987	66.5	63.6-69.3
Been Tested for HIV (18-64)	1,002	67.1	62.6-71.3
Military Veteran	950	77.0	72.7-80.8
Not a Military Veteran	5,566	65.7	63.5-67.7

Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2009

## **OBESITY, CLASS I-III**

**Definition:** Obesity, Class I-III is defined as having a Body Mass Index (BMI) of 30.0 or greater. Body Mass Index (BMI) is calculated by taking a person's body weight in pounds divided by height in inches, divided by height in inches (again) times 703. The mathematical equation for BMI is:  $\text{weight (lb)}/\text{height (in)}^2 \times 703$ .

### **Prevalence of Obesity, Class I-III**

- South Dakota 30.3%
- Nationwide median 26.9%

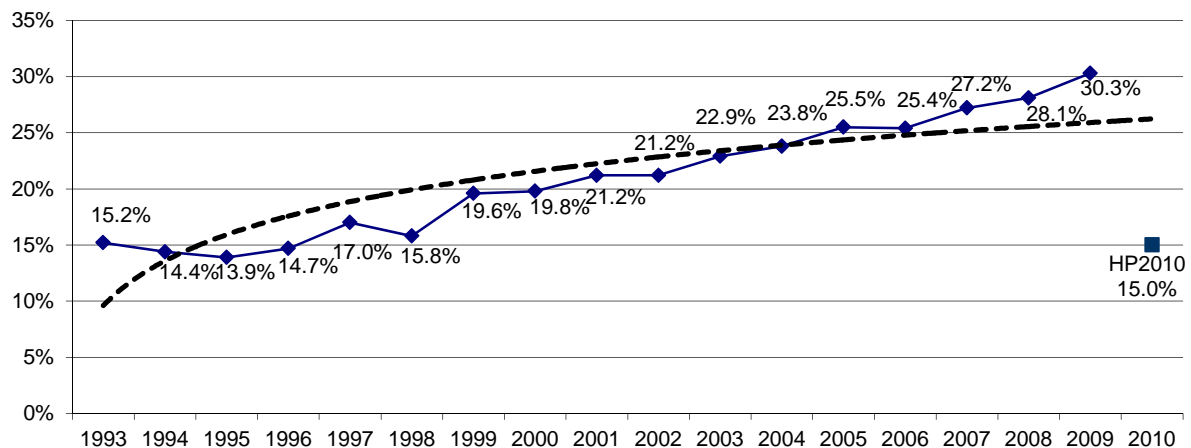
### **Healthy People 2010 Objective**

*Reduce the proportion of adults aged 20 years and older who are obese to 15 percent.*

### **Trend Analysis**

Overall, the percent of respondents who are obese has been increasing since the question was first asked in 1993. There was an all time low of 13.9 percent in 1995; however, by 2009 that percent has more than doubled at 30.3 percent. South Dakota has not met the *Healthy People 2010 Objective* of 15.0 percent.

**Figure 3**  
**Percent of Respondents Who Are Class I-III Obese Based**  
**on Body Mass Index, 1993-2009**



Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 1993-2009

### **Demographics**

**Gender** Males exhibit a significantly higher prevalence of obesity than females. This gender difference is most evident among whites, those who are in a household with \$75,000 or more for income, and those who are married.

**Age** The prevalence of obesity shows a significant decrease as the 75 and older age group is reached.

**Race** There are no racial differences observed from the available data.

<b>Region</b>	Those in the American Indian counties region show a very high prevalence of obesity, while those in the southeast and west regions demonstrate a very low prevalence.
<b>Household Income</b>	The prevalence of obesity in females is lower in the higher income groups. This association does not hold true for males.
<b>Education</b>	The prevalence of obesity generally decreases as education increases. This association is more evident with males.
<b>Marital Status</b>	Those who are divorced show a very high prevalence of obesity, while those who are widowed show a very low prevalence. This difference is more evident with females. Married females also exhibit a low prevalence of obesity.
<b>Children Status</b>	Having children in the household does not seem to affect obesity status.

<b>Table 6</b> <b>Respondents Who Are Class I-III Obese, 2009</b>									
	Total			Male			Female		
	# Resp.	%	95% CI	# Resp.	%	95% CI	# Resp.	%	95% CI
<b>Total</b>	<b>6,517</b>	<b>30.3</b>	<b>(28.5-32.1)</b>	<b>2,579</b>	<b>33.5</b>	<b>(30.7-36.4)</b>	<b>3,938</b>	<b>26.9</b>	<b>(24.9-29.0)</b>
<b>Age</b>									
18-24	199	25.1	(17.7-34.5)	*	*	*	*	*	*
25-34	557	26.6	(22.3-31.3)	206	24.4	(18.3-31.6)	351	29.1	(23.5-35.4)
35-44	797	34.8	(30.8-39.1)	338	38.4	(32.2-45.0)	459	30.8	(26.0-36.1)
45-54	1,324	33.4	(30.2-36.7)	551	38.6	(33.6-43.9)	773	27.8	(24.1-31.7)
55-64	1,363	36.8	(33.6-40.0)	578	41.0	(36.1-46.1)	785	32.1	(28.4-36.1)
65-74	1,057	33.6	(30.2-37.2)	413	32.3	(27.1-38.0)	644	34.8	(30.5-39.4)
75+	1,199	17.3	(14.9-20.1)	396	16.4	(12.6-21.0)	803	18.0	(15.0-21.4)
<b>Race</b>									
White	5,632	30.0	(28.2-32.0)	2,219	33.5	(30.5-36.6)	3,413	26.5	(24.4-28.7)
American Indian	689	37.0	(30.3-44.3)	270	41.3	(31.7-51.7)	419	33.6	(24.7-43.9)
<b>Region</b>									
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West	1,464	27.0	(23.8-30.4)	582	29.8	(24.9-35.1)	882	23.9	(20.1-28.3)
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<b>Household Income</b>									
Less than \$10,000	328	34.2	(25.8-43.7)	107	30.6	(17.5-47.8)	221	37.2	(28.3-47.1)
\$10,000-\$14,999	338	41.1	(31.6-51.4)	107	44.9	(30.0-60.8)	231	38.4	(26.6-51.8)
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\$25,000-\$34,999	822	31.2	(26.6-36.3)	324	32.2	(25.1-40.3)	498	30.3	(24.6-36.7)
\$35,000-\$49,999	1,032	26.9	(23.4-30.6)	435	28.7	(23.3-34.7)	597	25.2	(21.0-29.9)
\$50,000-\$74,999	1,028	31.2	(27.0-35.7)	472	32.0	(25.8-38.9)	556	30.2	(25.3-35.6)
\$75,000+	1,151	28.8	(25.3-32.5)	537	34.0	(29.1-39.2)	614	22.1	(17.5-27.5)
<b>Education</b>									
8th Grade or Less	229	23.4	(17.1-31.0)	124	22.6	(14.8-33.0)	105	24.9	(16.2-36.2)
Some High School	366	34.0	(24.8-44.6)	133	43.0	(27.9-59.5)	233	25.0	(17.3-34.8)
High School or G.E.D.	2,224	33.0	(29.9-36.3)	908	37.1	(32.2-42.4)	1,316	28.6	(25.1-32.4)
Some Post-High School	1,813	30.3	(27.1-33.7)	644	33.1	(27.8-38.9)	1,169	27.7	(24.2-31.6)
College Graduate	1,876	27.1	(24.3-30.1)	764	29.2	(25.0-33.7)	1,112	25.0	(21.3-29.0)

Table 6 (continued)									
Respondents Who Are Class I-III Obese, 2009									
	Total			Male			Female		
	# Resp.	%	95% CI	# Resp.	%	95% CI	# Resp.	%	95% CI
<b>Marital Status</b>									
Married/Unmarried Couple	3,920	29.2	(27.4-31.1)	1,703	32.6	(29.7-35.5)	2,217	25.7	(23.5-28.1)
Divorced/Separated	823	33.9	(29.1-38.9)	332	31.3	(23.9-39.8)	491	36.3	(30.8-42.2)
Widowed	1,037	24.1	(21.2-27.2)	165	27.9	(20.6-36.5)	872	23.3	(20.2-26.6)
Never Married	729	35.2	(28.8-42.1)	372	38.0	(29.2-47.7)	357	30.5	(22.5-40.0)
<b>Children Status</b>									
Children in Household	1,789	29.0	(26.1-32.2)	681	31.9	(27.3-37.0)	1,108	26.2	(22.6-30.2)
No Children in Household	4,725	31.1	(29.0-33.3)	1,895	34.5	(31.1-38.2)	2,830	27.4	(25.2-29.8)

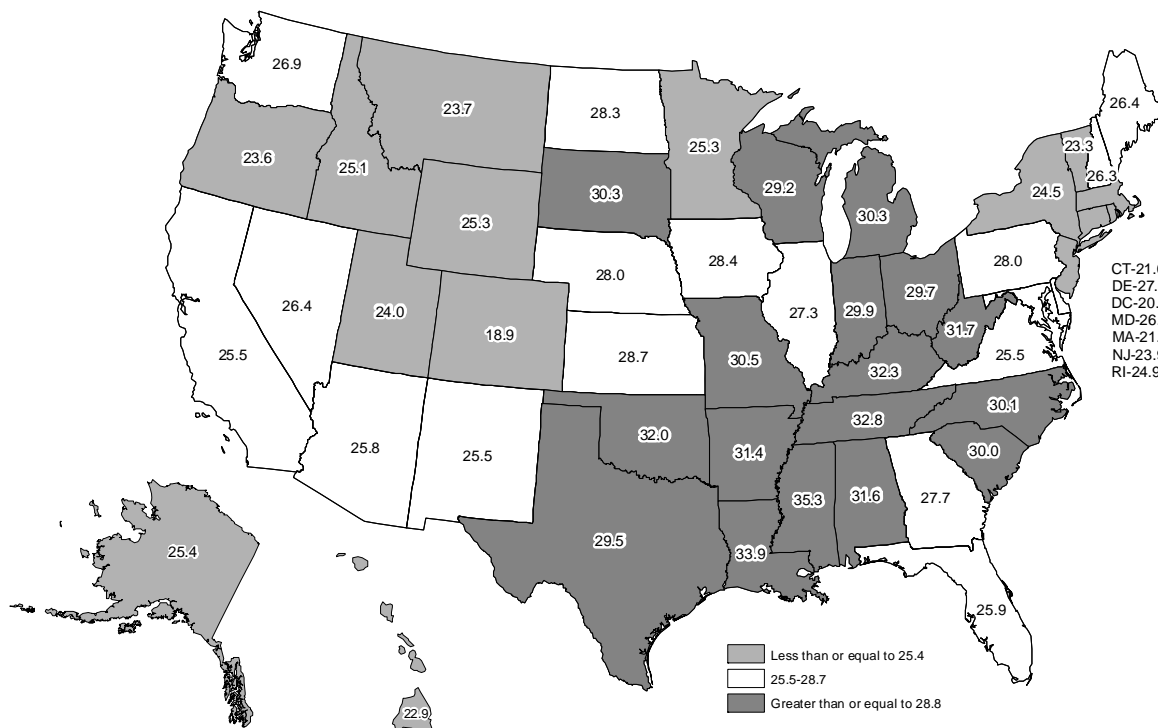
Note: \*Results based on sample sizes less than 100 have been suppressed.

Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2009

## National Statistics

The national median for respondents who are obese was 26.9 percent. South Dakota had 30.3 percent of respondents who are obese. Colorado had the lowest percent of respondents who are obese with 18.9 percent, while Mississippi had the highest percent with 35.3 percent.

**Figure 4**  
**Nationally, Respondents Who Are Class I-III Obese, 2009**



Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2009



## Further Analysis

Following are data illustrating the percent of those who are Class I-III obese for various health behaviors and conditions. For example, 42.2 percent of respondents who have high blood pressure are Class I-III obese, while 25.1 percent of respondents who do not have high blood pressure are Class I-III obese.

<b>Health Behavior or Condition</b>	<b># Respondents</b>	<b>% Obese</b>	<b>95% CI</b>
No Leisure Time Physical Activity	1,936	35.8	32.7-38.9
Leisure Time Physical Activity	4,578	28.5	26.4-30.7
No Moderate Physical Activity	3,471	35.0	32.4-37.6
Moderate Physical Activity	2,597	23.9	21.5-26.6
No Vigorous Physical Activity	5,041	32.8	30.7-34.9
Vigorous Physical Activity	1,171	21.5	18.1-25.3
Less Than Five Servings of Fruits and Vegetables	5,114	31.3	29.3-33.4
At Least Five Servings of Fruits and Vegetables	1,200	23.7	20.6-27.2
Current Smoker	1,109	31.3	26.9-36.0
Former Smoker	2,051	33.5	30.3-36.9
Never Smoked	3,348	28.2	25.9-30.6
Smokeless Tobacco Use	6,195	30.2	28.4-32.1
No Smokeless Tobacco Use	322	30.7	24.0-38.4
Diabetes	767	51.4	46.6-56.1
No Diabetes	5,748	28.6	26.8-30.6
High Blood Pressure	2,617	42.2	39.4-45.1
No High Blood Pressure	3,892	25.1	23.0-27.3
High Blood Cholesterol	2,353	38.2	35.5-41.0
No High Blood Cholesterol	3,167	28.2	25.9-30.6
No Health Insurance (18-64)	298	30.9	23.3-39.8
Health Insurance (18-64)	3,691	31.4	29.2-33.8
Employer Based Health Insurance Coverage (18-64)	2,322	31.0	28.3-33.8
Private Health Insurance Plan (18-64)	564	29.6	23.3-36.6
Medicare (18-64)	125	48.4	36.3-60.7
Medicaid or Medical Assistance (18-64)	148	33.6	21.8-47.9
The Military, CHAMPUS, TriCare, or the VA (18-64)	183	29.2	21.0-39.0
The Indian Health Service (18-64)	294	41.9	32.9-51.5
No Flu Shot (65+)	582	23.7	19.7-28.2
Flu Shot (65+)	1,644	25.9	23.4-28.6
No Pneumonia Shot (65+)	703	23.9	20.2-28.0
Pneumonia Shot (65+)	1,475	26.0	23.4-28.8
Drank Alcohol in Past 30 Days	3,307	28.9	26.6-31.4
No Alcohol in Past 30 Days	3,132	32.2	29.5-34.9
Binge Drinker	850	32.2	27.6-37.1
Not a Binge Drinker	5,519	29.7	27.8-31.6
Heavy Drinker	249	26.7	19.8-34.8
Not a Heavy Drinker	6,081	30.4	28.6-32.3
Previously Had a Heart Attack	431	34.1	28.4-40.3
Never Had a Heart Attack	6,052	30.0	28.2-31.9
Have Angina or Coronary Heart Disease	388	35.2	29.1-41.9
Do Not Have Angina or Coronary Heart Disease	6,070	30.1	28.2-31.9
Previously Had a Stroke	244	29.3	21.3-38.8
Never Had a Stroke	6,257	30.2	28.5-32.1
Ever Diagnosed with Cancer	971	27.7	24.3-31.4
Never Diagnosed with Cancer	5,256	30.3	28.3-32.3
Current Asthma	529	33.0	26.8-39.9
Former Asthma	190	24.8	17.9-33.2
Never Had Asthma	5,758	30.2	28.3-32.2
Arthritis	2,282	37.4	34.7-40.3
No Arthritis	4,072	27.6	25.4-29.9

<b>Table 7 (continued)</b> <b>Class I-III Obese Status for Selected Health Behaviors and Conditions, 2009</b>			
<b>Health Behavior or Condition</b>	<b># Respondents</b>	<b>% Obese</b>	<b>95% CI</b>
Caregiver	1,560	32.3	28.8-36.0
Not a Caregiver	4,920	29.7	27.7-31.8
Fair or Poor Health Status	1,087	40.8	36.3-45.5
Excellent, Very Good, or Good Health Status	5,418	28.8	26.9-30.8
Physical Health Not Good for 30 Days of the Past 30	521	37.8	32.2-43.7
Physical Health Not Good for 0-29 Days of the Past 30	5,916	29.9	28.0-31.8
Mental Health Not Good for 20-30 Days of the Past 30	340	44.0	34.7-53.8
Mental Health Not Good for 0-19 Days of the Past 30	6,097	29.6	27.8-31.5
Usual Activities Unattainable for 10-30 Days of the Past 30	480	43.8	37.3-50.4
Usual Activities Unattainable for 0-9 Days of the Past 30	5,994	29.5	27.7-31.4
Dissatisfied / Very Dissatisfied with Life	240	43.9	35.1-53.0
Satisfied / Very Satisfied with Life	5,963	29.6	27.8-31.5
Not Enough Sleep for 30 Days of the Past 30	618	37.1	31.4-43.3
Not Enough Sleep for 0-29 Days of the Past 30	5,826	29.5	27.7-31.4
Physical, Mental, or Emotional Disability	1,540	39.6	36.2-43.0
No Physical, Mental, or Emotional Disability	4,921	28.3	26.3-30.4
Disability with Special Equipment Needed	655	38.6	33.2-44.3
No Disability with Special Equipment Needed	5,805	29.7	27.8-31.6
Two or More Hours of TV Watched Per Day	4,863	32.5	30.4-34.6
Less Than Two Hours of TV Watched Per Day	1,294	22.5	18.9-26.5
Never Been Tested for HIV (18-64)	2,987	31.3	28.7-34.0
Been Tested for HIV (18-64)	1,002	31.4	27.4-35.6
Military Veteran	950	30.5	26.7-34.7
Not a Military Veteran	5,566	30.2	28.3-32.2

Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2009

## **OBESITY, CLASSES II-III**

**Definition:** Obesity, Classes II-III is defined as having a Body Mass Index (BMI) of 35.0 or greater. Body Mass Index (BMI) is calculated by taking a person's body weight in pounds divided by height in inches, divided by height in inches (again) times 703. The mathematical equation for BMI is:  $\text{weight (lb)}/\text{height (in)}^2 \times 703$ .

### **Prevalence of Obesity, Classes II-III**

- South Dakota 10.4%
- There is no nationwide median for Obesity classes II-III

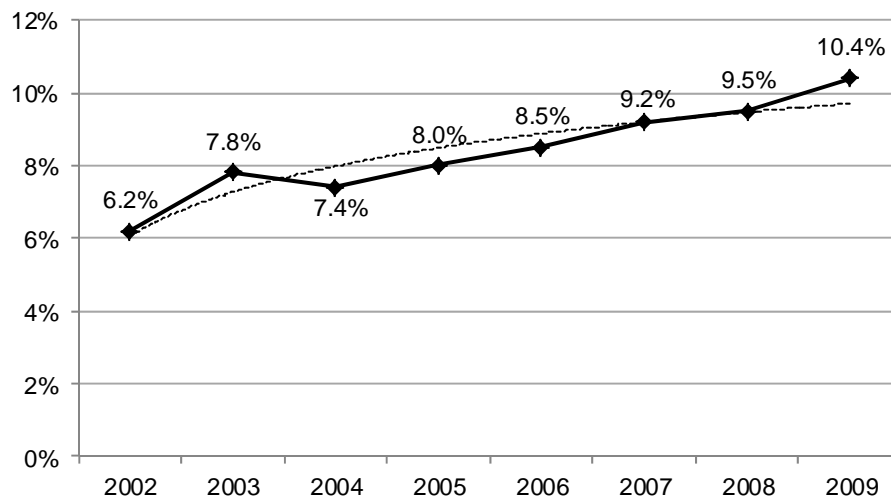
### **Healthy People 2010 Objective**

There is no stated Healthy People 2010 Objectives for Obesity, Classes II-III.

### **Trend Analysis**

The percent of respondents who are Class II-III obese has been steadily increasing from a low of 6.2 percent in 2002 to a high of 10.4 percent in 2009.

**Figure 5**  
**Percent of Respondents Who Are Class II-III Obese Based on**  
**Body Mass Index, 2002-2009**



Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2002-2009

### **Demographics**

- |               |   |
|---------------|---|
| <b>Gender</b> | There are no gender differences observed from the available data.   |
| <b>Age</b>    | The prevalence of class II-III obesity shows a significant decrease as the 75 and older age group is reached. |
| <b>Race</b>   | American Indians exhibit a significantly higher prevalence of class II-III obesity than do whites.            |

<b>Region</b>	Those in the American Indian counties region show a very high prevalence of class II-III obesity, while those in the west region demonstrate a very low prevalence.
<b>Household Income</b>	The prevalence of class II-III obesity does not seem to be affected by household income.
<b>Education</b>	The prevalence of class II-III obesity does not seem to change as education levels change.
<b>Marital Status</b>	Those who are divorced show a very high prevalence of class II-III obesity, while those who are married or widowed show a very low prevalence. These differences are more evident with females.
<b>Children Status</b>	Having children in the household does not seem to affect class II-III obesity status.

<b>Table 8</b>									
<b>Respondents Who Are Class II-III Obese, 2009</b>									
	<b>Total</b>			<b>Male</b>			<b>Female</b>		
	<b># Resp.</b>	<b>%</b>	<b>95% CI</b>	<b># Resp.</b>	<b>%</b>	<b>95% CI</b>	<b># Resp.</b>	<b>%</b>	<b>95% CI</b>
<b>Total</b>	<b>6,517</b>	<b>10.4</b>	<b>(9.3-11.6)</b>	<b>2,579</b>	<b>10.2</b>	<b>(8.5-12.1)</b>	<b>3,938</b>	<b>10.6</b>	<b>(9.2-12.2)</b>
<b>Age</b>									
18-24	199	8.0	(4.0-15.4)	*	*	*	*	*	*
25-34	557	9.9	(7.3-13.2)	206	7.9	(4.6-13.1)	351	12.2	(8.6-16.9)
35-44	797	13.4	(10.7-16.6)	338	12.9	(9.1-18.0)	459	14.0	(10.6-18.2)
45-54	1,324	12.0	(9.9-14.4)	551	12.3	(9.2-16.3)	773	11.6	(9.1-14.6)
55-64	1,363	12.1	(10.1-14.5)	578	13.1	(10.0-17.0)	785	11.1	(8.8-13.8)
65-74	1,057	10.1	(8.1-12.6)	413	8.2	(5.5-12.1)	644	12.0	(9.3-15.3)
75+	1,199	4.1	(3.0-5.6)	396	3.0	(1.5-6.0)	803	4.8	(3.4-6.7)
<b>Race</b>									
White	5,632	10.0	(8.8-11.3)	2,219	9.9	(8.2-12.0)	3,413	10.0	(8.6-11.6)
American Indian	689	17.3	(12.1-24.0)	270	17.3	(11.2-25.7)	419	17.3	(10.1-28.1)
<b>Region</b>									
Southeast	1,286	9.7	(7.9-11.9)	492	9.9	(7.4-13.1)	794	9.6	(7.0-12.9)
Northeast	1,258	11.6	(9.1-14.7)	469	12.3	(8.1-18.3)	789	11.0	(8.6-13.9)
Central	1,485	11.3	(9.4-13.7)	592	10.3	(7.4-14.3)	893	12.4	(10.1-15.2)
West	1,464	9.0	(6.9-11.7)	582	8.2	(5.4-12.1)	882	10.0	(7.1-13.9)
American Indian Counties	1,024	14.8	(11.9-18.1)	444	13.8	(10.0-18.6)	580	15.9	(12.0-20.8)
<b>Household Income</b>									
Less than \$10,000	328	14.1	(9.6-20.3)	107	8.9	(3.7-19.9)	221	18.5	(12.6-26.2)
\$10,000-\$14,999	338	17.5	(10.1-28.7)	107	12.6	(5.8-25.4)	231	20.9	(10.3-37.9)
\$15,000-\$19,999	446	13.8	(9.6-19.5)	148	11.3	(5.3-22.4)	298	16.1	(11.1-22.8)
\$20,000-\$24,999	610	14.3	(8.8-22.4)	219	19.2	(9.2-35.7)	391	10.1	(6.8-14.8)
\$25,000-\$34,999	822	12.1	(9.2-15.8)	324	12.4	(8.0-18.7)	498	11.8	(8.4-16.2)
\$35,000-\$49,999	1,032	9.3	(7.4-11.7)	435	8.7	(6.2-12.2)	597	9.9	(7.3-13.3)
\$50,000-\$74,999	1,028	9.1	(7.1-11.6)	472	7.7	(5.2-11.1)	556	10.9	(7.9-14.8)
\$75,000+	1,151	9.3	(6.9-12.3)	537	10.2	(7.3-14.2)	614	8.1	(4.7-13.4)
<b>Education</b>									
8th Grade or Less	229	8.5	(5.0-13.8)	124	6.3	(2.9-12.9)	105	12.8	(6.5-23.7)
Some High School	366	9.6	(6.3-14.4)	133	9.4	(4.5-18.4)	233	9.8	(6.2-15.2)
High School or G.E.D.	2,224	12.1	(10.1-14.5)	908	13.7	(10.7-17.4)	1,316	10.4	(8.0-13.5)
Some Post-High School	1,813	9.9	(7.8-12.4)	644	9.7	(6.4-14.6)	1,169	10.0	(7.9-12.4)
College Graduate	1,876	9.4	(7.6-11.7)	764	7.5	(5.4-10.4)	1,112	11.4	(8.5-15.0)
<b>Marital Status</b>									
Married/Unmarried Couple	3,920	9.3	(8.2-10.5)	1,703	9.4	(7.8-11.4)	2,217	9.2	(7.8-10.7)
Divorced/Separated	823	15.3	(11.8-19.5)	332	14.5	(9.2-22.3)	491	15.9	(12.0-20.8)
Widowed	1,037	7.4	(5.8-9.5)	165	7.2	(3.8-13.4)	872	7.5	(5.8-9.7)
Never Married	729	13.8	(9.8-19.1)	372	11.7	(7.1-18.6)	357	17.2	(10.7-26.4)
<b>Children Status</b>									
Children in Household	1,789	10.4	(8.5-12.6)	681	9.1	(6.8-12.1)	1,108	11.6	(8.9-15.0)
No Children in Household	4,725	10.4	(9.1-11.9)	1,895	10.9	(8.7-13.5)	2,830	9.8	(8.5-11.3)

Note: \*Results based on sample sizes less than 100 have been suppressed.

Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2009

## Further Analysis

Following are data illustrating the percent of those who are obese for various health behaviors and conditions. For example, 23.7 percent of respondents who have diabetes are Class II-III obese, while 9.4 percent of respondents who do not have diabetes are Class II-III obese.

<b>Table 9</b> <b>Class II-III Obese Status for Selected Health Behaviors and Conditions, 2009</b>			
<b>Health Behavior or Condition</b>	<b># Respondents</b>	<b>% Obese</b>	<b>95% CI</b>
No Leisure Time Physical Activity	1,936	14.7	12.5-17.1
Leisure Time Physical Activity	4,578	9.0	7.8-10.5
No Moderate Physical Activity	3,471	12.9	11.2-14.7
Moderate Physical Activity	2,597	7.4	5.9-9.3
No Vigorous Physical Activity	5,041	11.7	10.3-13.2
Vigorous Physical Activity	1,171	6.4	4.5-9.0
Less Than Five Servings of Fruits and Vegetables	5,114	10.8	9.5-12.3
At Least Five Servings of Fruits and Vegetables	1,200	7.9	6.1-10.0
Current Smoker	1,109	10.2	7.6-13.6
Former Smoker	2,051	10.5	8.8-12.5
Never Smoked	3,348	10.4	8.8-12.2
Smokeless Tobacco Use	322	10.9	6.8-17.1
No Smokeless Tobacco Use	6,195	10.4	9.2-11.6
Diabetes	767	23.7	19.9-28.0
No Diabetes	5,748	9.4	8.2-10.7
High Blood Pressure	2,617	15.3	13.4-17.3
No High Blood Pressure	3,892	8.3	7.0-9.9
High Blood Cholesterol	2,353	12.1	10.4-14.0
No High Blood Cholesterol	3,167	9.5	8.2-10.9
No Health Insurance (18-64)	3,691	11.3	9.8-12.9
Health Insurance (18-64)	298	9.2	5.7-14.5
Employer Based Health Insurance Coverage (18-64)	2,322	10.5	8.9-12.4
Private Health Insurance Plan (18-64)	564	9.0	5.0-15.6
Medicare (18-64)	125	18.8	11.8-28.6
Medicaid or Medical Assistance (18-64)	148	18.3	9.4-32.6
The Military, CHAMPUS, TriCare, or the VA (18-64)	183	12.4	7.2-20.4
The Indian Health Service (18-64)	294	23.1	16.1-32.0
No Flu Shot (65+)	582	6.8	4.7-9.7
Flu Shot (65+)	1,644	7.2	5.8-8.9
No Pneumonia Shot (65+)	703	6.6	4.7-9.2
Pneumonia Shot (65+)	1,475	7.4	6.0-9.2
Drank Alcohol in Past 30 Days	3,307	9.0	7.5-10.7
No Alcohol in Past 30 Days	3,132	12.4	10.8-14.2
Binge Drinker	850	10.8	7.8-14.8
Not a Binge Drinker	5,519	10.3	9.2-11.6
Heavy Drinker	249	7.5	4.1-13.2
Not a Heavy Drinker	6,081	10.6	9.4-11.9
Previously Had a Heart Attack	431	11.7	8.1-16.4
Never Had a Heart Attack	6,052	10.2	9.1-11.5
Have Angina or Coronary Heart Disease	388	11.0	7.5-15.9
Do Not Have Angina or Coronary Heart Disease	6,070	10.3	9.2-11.6
Previously Had a Stroke	244	4.4	2.3-8.3
Never Had a Stroke	6,257	10.5	9.3-11.7
Ever Diagnosed with Cancer	971	7.9	6.0-10.4
Never Diagnosed with Cancer	5,256	10.6	9.4-12.0
Current Asthma	529	16.7	11.8-23.1
Former Asthma	190	10.3	6.3-16.6
Never Had Asthma	5,758	9.8	8.6-11.1
Arthritis	2,282	13.3	11.6-15.3
No Arthritis	4,072	9.4	8.0-10.9
Caregiver	1,560	11.5	9.0-14.6
Not a Caregiver	4,920	10.0	8.8-11.3

<b>Table 9 (continued)</b> <b>Class II-III Obese Status for Selected Health Behaviors and Conditions, 2009</b>			
<b>Health Behavior or Condition</b>	<b># Respondents</b>	<b>% Obese</b>	<b>95% CI</b>
Fair or Poor Health Status	1,087	18.5	15.4-22.1
Excellent, Very Good, or Good Health Status	5,418	9.3	8.1-10.6
Physical Health Not Good for 30 Days of the Past 30	521	17.0	13.1-21.9
Physical Health Not Good for 0-29 Days of the Past 30	5,916	10.0	8.9-11.3
Mental Health Not Good for 20-30 Days of the Past 30	340	19.7	12.4-29.8
Mental Health Not Good for 0-19 Days of the Past 30	6,097	9.9	8.8-11.2
Usual Activities Unattainable for 10-30 Days of the Past 30	480	17.3	13.2-22.4
Usual Activities Unattainable for 0-9 Days of the Past 30	5,994	10.0	8.9-11.3
Dissatisfied / Very Dissatisfied with Life	240	19.4	13.1-27.7
Satisfied / Very Satisfied with Life	5,963	10.1	8.9-11.4
Not Enough Sleep for 30 Days of the Past 30	618	13.9	10.4-18.2
Not Enough Sleep for 0-29 Days of the Past 30	5,826	10.1	8.9-11.4
Physical, Mental, or Emotional Disability	1,540	15.4	13.2-17.8
No Physical, Mental, or Emotional Disability	4,921	9.3	8.0-10.7
Disability with Special Equipment Needed	655	17.9	14.0-22.5
No Disability with Special Equipment Needed	5,805	9.8	8.7-11.1
Two or More Hours of TV Watched Per Day	4,863	11.5	10.2-13.0
Less Than Two Hours of TV Watched Per Day	1,294	6.7	4.7-9.4
Never Been Tested for HIV (18-64)	2,987	11.0	9.3-12.8
Been Tested for HIV (18-64)	1,002	11.5	9.0-14.6
Military Veteran	950	9.9	7.6-12.8
Not a Military Veteran	5,566	10.5	9.2-11.8

Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2009